**Whitepaper Draft**

**Abstract**

Centralized Governments grow in a very slow pace compared to their people, which leaves a lot to be desired when it comes to performance. Security is also an issue because the systems of a government are not only susceptible to attacks from its own citizens, but also from other nations’ governments. And finally, corruption – a disease that every governmental structure is susceptible to. It slows down governments and causes their citizens to lose trust in them.

***\* Add drawing of annoyed guy looking at watch \* DONE***

An immutable, decentralized, blockchain-based government where the network’s processing power naturally grows as more users join the network solves the performance, corruption, and security issues.

GovCoin, a cryptocurrency meant for use on the network, will facilitate rewarding users who provide processing power to the network, as well as increase the speed of any given request.

***\* Add icon of GovCoin \* DONEv***

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**Introduction**

Blockchain technology, which was originally introduced as the backbone for Bitcoin, has changed the way developers and problem solvers think. What once was science fiction has now become a reality. We have all the tools we need; the rest is only about implementation.

***\* Add Drawing of bitcoin icon \* DONE***

A blockchain is a transparent, immutable, distributed database of hashed blocks which are interlinked in a way that makes changing one block in the chain very computationally expensive as it would require the change of all written blocks which currently exist on the network.

For the proposed application, the most important reasons for using a blockchain are its ***transparency***, and its ***immutability***. As will be explained in sections below.

***\* Draw a simplified blockchain \*DONE***

Using blockchain, the “center” of operations for the government will become its own people. Although it doesn’t represent a center anymore, but rather a “de-center”. This will be achieved by giving users the ability to contribute their device’s processing power to the network in exchange for a given governmental service (paying a bill, or acquiring a legal document, etc..) with a reward system to give incentive. This way, the network will virtually never run out of processing power, as will be explained in a section below.

***\*Add Drawing of Centered vs Distributed Systems\*DONE***

All large centralized systems will eventually have to be replaced by their decentralized counterparts. This includes Social Media, Banking and, most importantly, Government Structures.

The main issues with a centralized government are Trust, Corruption, and Performance.

**Trust**

Trust between the people and their government can be quite a rollercoaster ride.

***\* Add Drawings of Classified Documents, Lots of RED, Question Marks\* DONE***

The government hides all its secrets from everyone – including its own people – to keep the security of its nation. However, an argument can be made that increasing the trust of the people in their government also increases the security of the nation. Therefore, an open-source implementation of a government, which allows all citizens to see what is going on in the backscenes, will increase the trust of all individuals in their system. Not to mention that if everyone is watching all the time, then very few errors will go unspotted, which also increases the security of this open-source government.

***\* Add Drawings of a contrast to previous situation, Lots of BLUE, maybe a thumbs-up and a smile\* DONE***

**Corruption**

All governments suffer from a certain degree of corruption. Private businesses or individuals may bribe their way out of paying taxes, or perhaps pay an official to look the other way while they do something illegal, or maybe even forge legal documents; The examples go on and on. Regardless of the action, its effects on the government are loss of the people’s trust in the short term, and a detrimental loss to efficiency and order in the long term.

***\* Add drawings of shady people doing shady things mentioned above \* DONE***

In the proposed system, the concept of forgery cannot be applied in any realistic scenario. This is due to the reason that in a blockchain, the chain with the most processing power is the one which is accepted by the network to be valid. Since a decentralized government employs the use of the population, it would require an immense amount of processing power to change the accepted chain.

***\* Add drawing of Shield \* DONE***

For example, in the republic of turkey, which currently has an estimated population of 82 million,

Assuming that [an average smartphone](http://blog.gsmarena.com/samsung-galaxy-s6-powerful-2-9m-imb-704-supercomputers-1954-infographic-reveals/) has ~35 GFLOPS of processing power, and a [smartphone user penetratioan rate](https://www.statista.com/statistics/568281/predicted-smartphone-user-penetration-rate-in-turkey/#:~:text=That%20would%20mark%20the%20first,penetration%20rate%20exceeds%2070%20percent.&text=As%20of%202018%2C%20there%20were,56.4%20million%20users%20in%202023.) of ~65%, there is a total of 1,865.5 PFLOPS of processing power.

***\* Add drawing of modern smartphone \* DONEz***

To put it into perspective, if only 25% of the population was online in this network ( ~466 PFLOPS), not even the fastest supercomputer in the world ( [Fugaku – Japan](https://sciencenode.org/feature/the-5-fastest-supercomputers-in-the-world.php), ~415 PFLOPS ) would be able to overpower it.

***\* Add drawing of supercomputer vs many many phones, maybe a pile of phones? \* DONE***

This is how the ***immutability*** feature of blockchains works.

And when it comes to bribery, the problem goes away on its own; There is simply no one to bribe. The system is fully automated.

And as a final countermeasure for corruption, blockchains are inherently ***transparent***. This means that the entire chain, right to the very first block, can be viewed by anyone at any time. Removing any room for forgery or foul play.

***\* Add drawing of magnifier over a blockchain \* DONE***

**Performance**

The most promising aspect of this solution is how naturally it scales with demand.

A user will be required to do either of the following in order to gain access to a certain governmental service (such as acquiring a legal document):

***A.*** Promise to provide the network with processing power equal to how much fulfilling their request would take. (A debt of processing power)

***B.*** Pay a certain fee, using GovCoin (see below), to cover the processing cost of their request.

The approach in ***option A*** demands that the user pays back their “debt” ***after*** they’ve fulfilled their request, rather than ***before***. This is because each user’s request may be slightly different, and it would be unfair if a simple request demanded more processing power than it needed, or if a complex request demanded too little. If the user has incurred a debt larger than a predefined limit, then they are deemed as a ***greedy node***, and they either have to pay it back, or use ***option B***.

Users, in general, would most likely accumulate a lot of processing debt if there was no incentive for them to become a contributing node, and the network will become slow and ineffective. The solution to this issue is an ***Incentive.***

This incentive will be in the form of a reward to contributing nodes, equal to how much they contributed in processing power to the network, plus a bonus. This bonus will be directly related to how much processing power there is in the network at the given time. i.e. The less processing power the network has, the larger the bonus.

***\* Add drawing of phone “uploading” processing power, and “downloading” GovCoin as reward \* DONE***

As is appropriate when using blockchains, the reward will be in the form of a cryptocurrency.

The reward will be a post-determined amount of GovCoin, which the user can trade for non-digital currency, or use later to skip having to contribute to the network again (***Option B***).

***\* Add drawing for icon of GovCoin \* DONE***

In ***Option B***, the user will have the ability to skip the processing fee by paying an amount of GovCoin relative to how computationally demanding their request is, as well as how much processing power is available to the network. i.e. If the network were to have ***more***processing power, then the cost of skipping the processing fee would ***drop***, and vice-versa.

The user will also be given the ability to increase the processing speed of their request by paying more GovCoin for said request.

And finally, to maintain a minimum performance threshold for the network, users will be given the option to become ***Contributing Nodes*** regardless of whether they are sending a request, and still receive a reward proportional to their contribution plus the aforementioned bonus.

So, in summary:

The less active the network, the higher the reward for *Contributing Nodes.*

Similarly, the more active the network, the cheaper the price of skipping contribution.

This maintains the balance of both keeping the network highly active, and keeping GovCoin in circulation with the added benefit of not forcing users to contribute all the time.

**Technical Side of the Solution**

**GovCoin**

GovCoin will be the official cryptocurrency used on the proposed blockchain network. Preferably, it will be a *Gold-Backed* cryptocurrency to maintain minimum volatility.

***\* Add icon for GovCoin \* DONE***

**Smart Services**

A user’s request must be validated according to government standards and conditions. For example, only those who are 18+ and have completed a driving course may send a driver’s license request.

***\* Add Drawing of check list with some checkboxes on it, some will be checked with a blue tick \* DONE***

Therefore, the proposed system will implement the use of ***smart services,*** similar to ***smart contracts*** on the ***Ethereum Blockchain.***

A **Smart Service** can be considered a sub-type of a smart contract, with the difference that only official recognized parties may make a **Smart Service.**

Just like in the Ethereum Network, there will be no need for the government to monitor the transactions occurring for each service. This will significantly decrease the cost and time waste per service.

***\* Add drawing of a governmental-looking building with an arrow pointing to a smart service \* DONE***

These smart services will be deployed by the government on the blockchain, which means they are open for anyone to see, which shouldn’t be an issue to security, since the vast majority of services are quite simple in nature.

A smart service will only fulfill the user’s request if they meet the conditions set by the government.

**In Summary**

Blockchain technology has provided us with the means to solve problems in ways we haven’t been able to before. A large issue such as the infrastructure of an entire government is no longer an impossible hurdle to overcome.

Current governmental structures are prone to many issues, such as losing the ***trust*** of their citizens, struggling with keeping ***performance*** up to standards, as well as keeping ***corruption*** out of the picture.

A decentralized, open-source, blockchain-based governmental structure solves the issues of Trust, Corruption, and Performance while allowing the individual to directly contribute to the network and increase its performance. GovCoin is used as an incentive to reward contributing individuals in proportion with their contribution plus a calculated bonus.